

# ***‘Moving Washington’***

## **Capacity, Efficiency, Demand**

*WSDOT’s three-part strategy to relieve congestion*

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**February 20, 2008**



# We're doing a lot right now...

*Three-part strategy to address congestion:*

- Adding capacity strategically
- Operating roadways efficiently
- Managing demand



## The Big Picture

*The Legislature's  
State Transportation Policy Goals:*

- Preservation
- Safety
- Mobility
- Reliability
- Stewardship



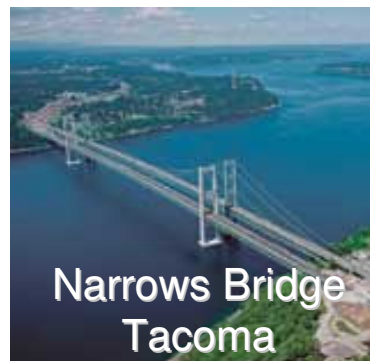
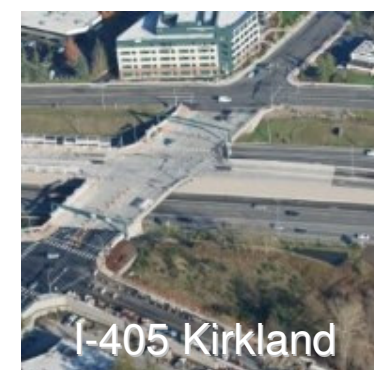
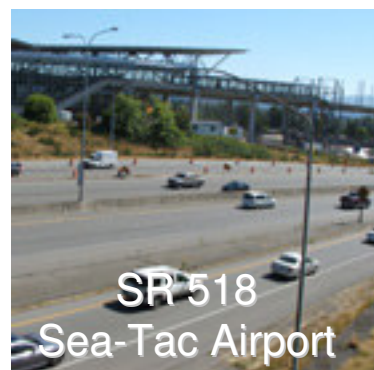
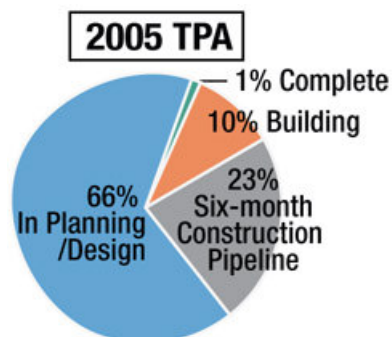
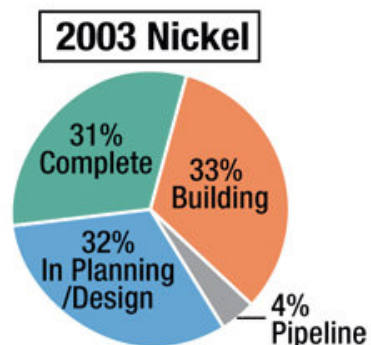


# Adding Capacity Strategically

*Building is part of the solution*

## Project Delivery

The Nickel and TPA plans include 392 projects targeting safety, preservation and congestion relief.





# Operating Efficiently

*Getting the most out of the infrastructure we have*

- **Intelligent Transportation Systems (ITS):**

135 ramp meters, real-time traveler information, 475 traffic cameras, 179 variable message boards, 7 traffic management centers.

- **Incident Response Teams:**

55 trucks responded to 52,877 incidents in 2007. Average clearing time dropped from 33 minutes in 2001 to 16 minutes in 2007.

- **Signal Timing:**

Signal optimization program monitors and adjusts 884 traffic signals to save drivers thousands of hours in yearly traffic delay.

- **High occupancy vehicle (HOV) lanes:**

200 miles of planned 300-mile HOV system complete.

- **High occupancy toll (HOT) lanes:**

Making HOV lanes more efficient.





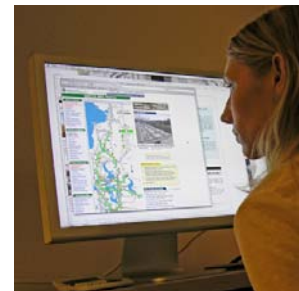


# Managing Demand

*Providing people choices*

**As the urban areas grow, so does demand and corresponding congestion.** WSDOT works with multiple modes to manage demand.

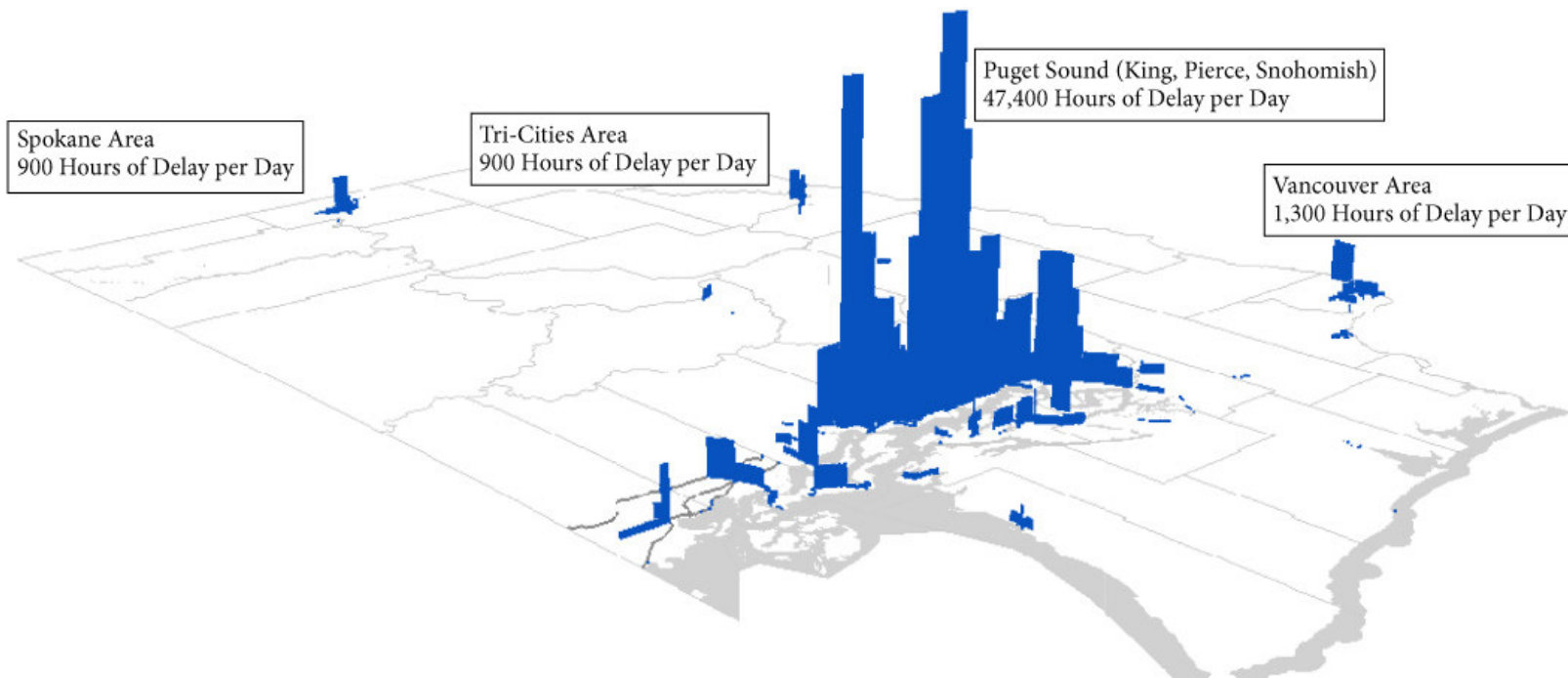
- **Commute Trip Reduction:** More than 1,100 worksites now participate in the program, reducing delay by 19%.
- **Transit options:** bus, light rail, commuter rail, providing 180 million transit trips annually.
- **Vanpools:** The largest vanpool program in the nation has increased 40% since 2003 with more than 2,200 vanpools and nearly 18,000 riders daily.
- **Planning with Cities and Towns:** Careful Land-use actions under the Growth Management Act connect transportation with development.
- **Park and Ride:** 300 lots statewide with more than 43,000 parking stalls
- **Bike lanes and pedestrian access**



**There's a lot more to be done...**

## **Highway Congestion**

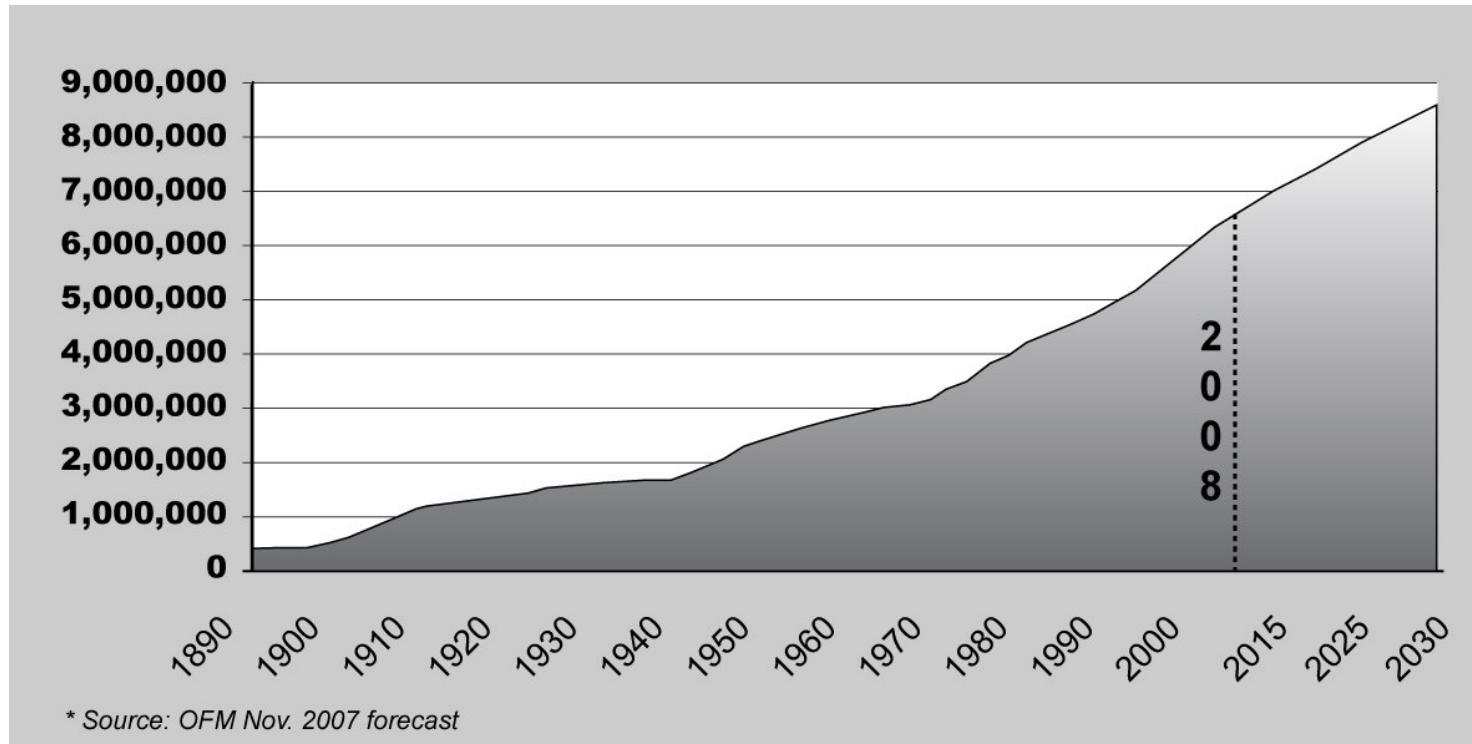
*Vehicle Hours of Delay per Day per Mile in Washington State*



- 370,000 vehicle hours (520,000 person hours) daily delay (2004)
- Chiefly affecting urban areas and especially the Puget Sound region

# Washington State Population Growth\*

*Demand is increasing rapidly*

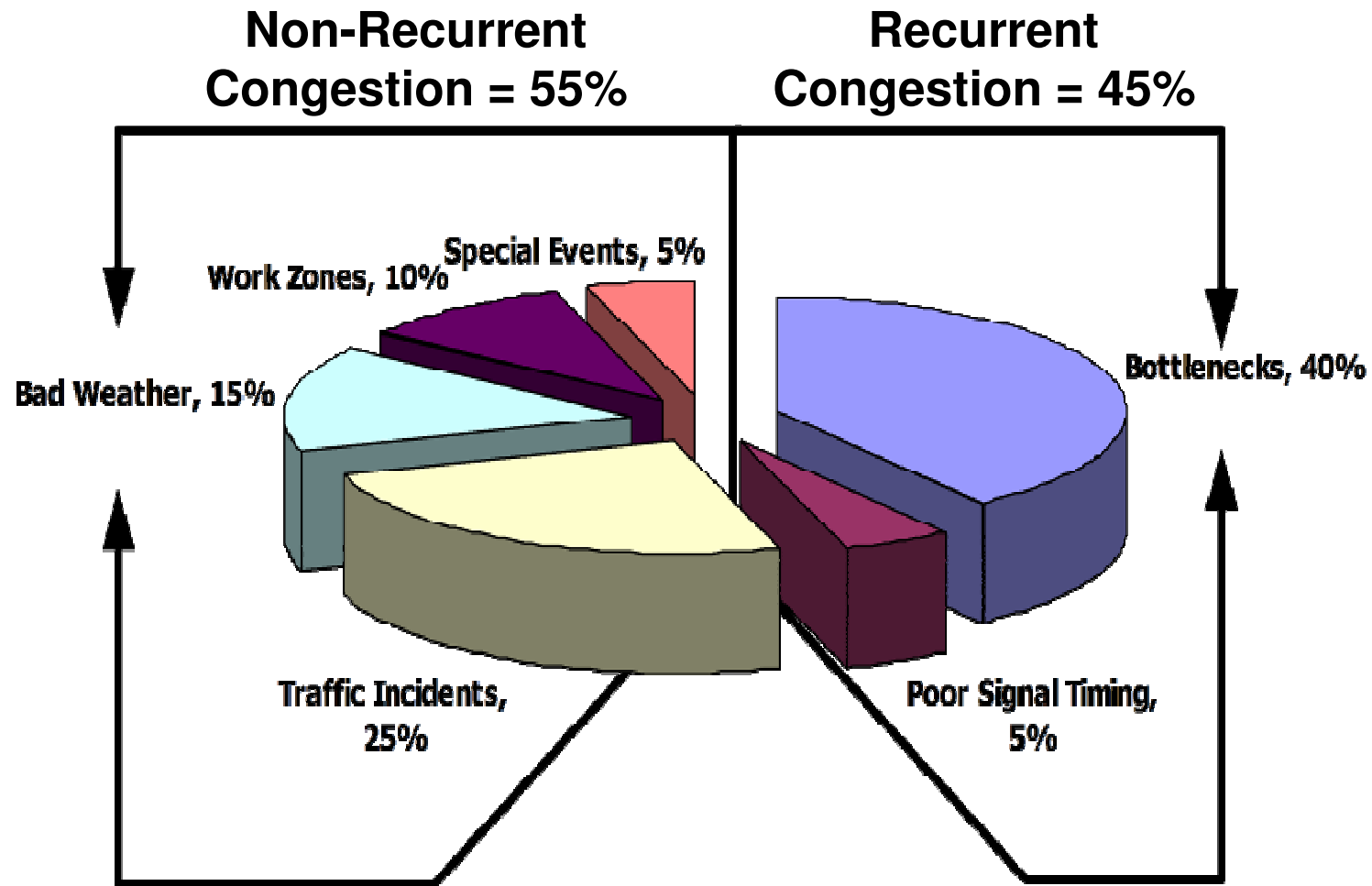


2 million more people  
expected by 2030



# Causes of Congestion

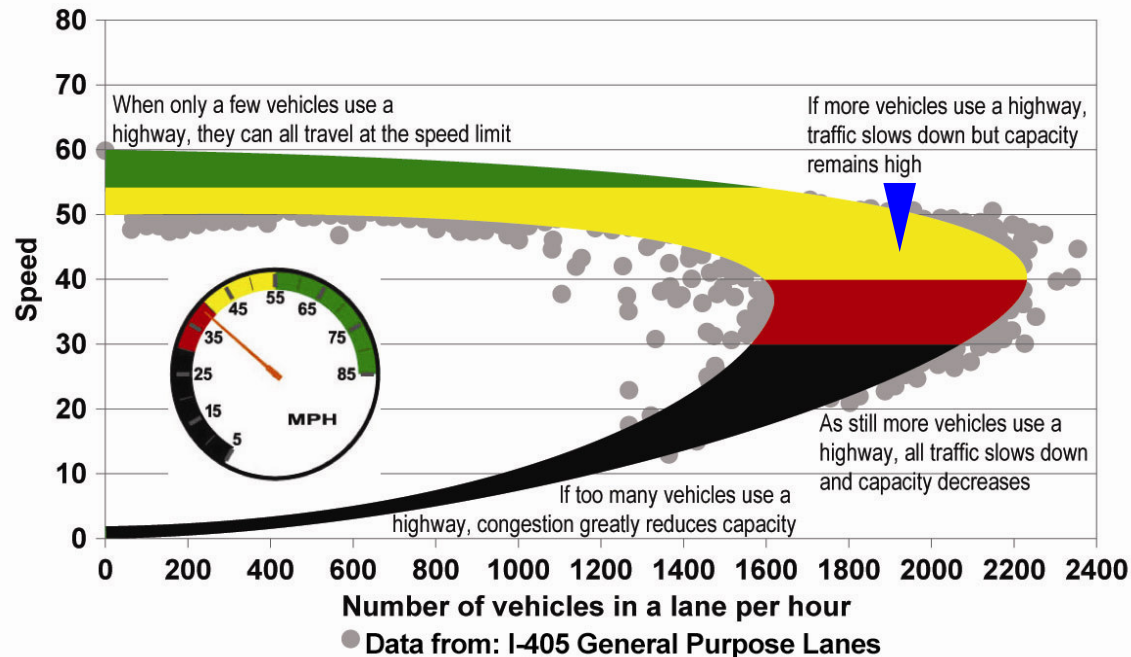
*It's more than bottlenecks*





# Maximizing Throughput

*Making lanes more efficient*



I-405 at SR 169 in Renton



## Lost Productivity

Despite increased demand during rush-hour congestion, fewer vehicles move through each lane.

Each corridor requires balanced solutions...

## Major Corridor Strategies



Central  
Puget Sound



Spokane



Vancouver

# Eastside Corridor



## Strategically Added Capacity

- I-405 Chokepoints Bothell, Kirkland, Bellevue, Renton, Tukwila
- SR 167 HOV Auburn
- Sound Transit HOV Direct Access Ramps



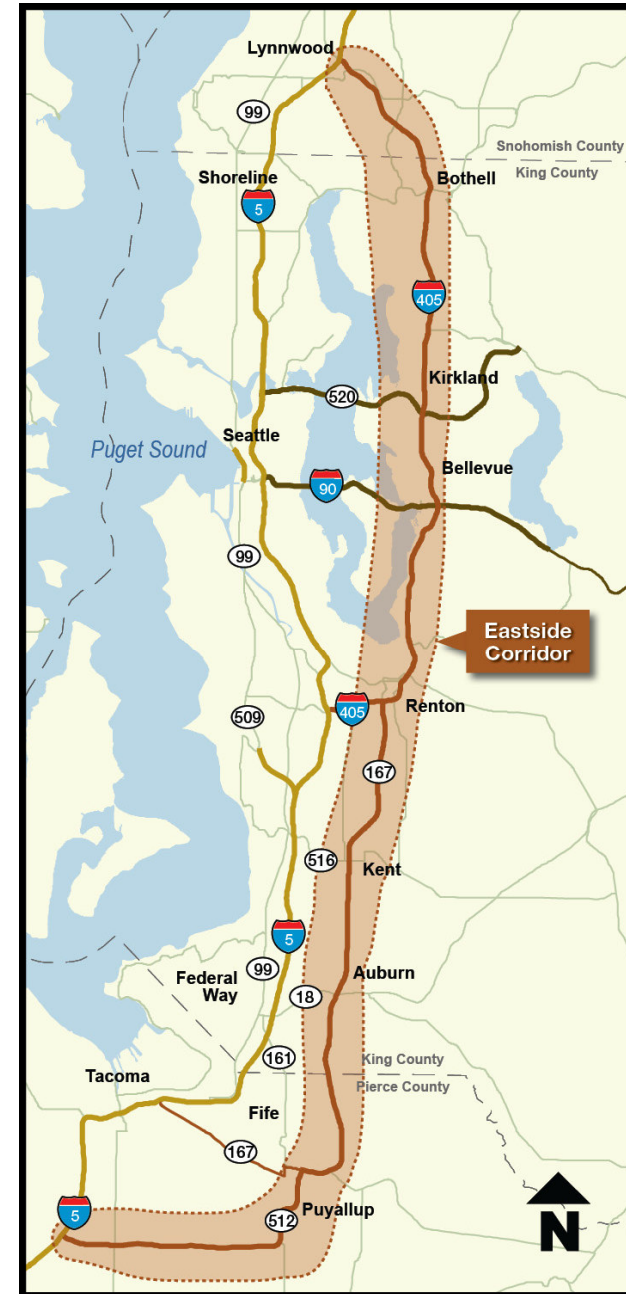
## Operate Efficiently

- Ramp Metering / ITS
- Incident Response Teams
- SR 167 HOT Lane Pilot
- I-405 variable toll lanes concept



## Manage Demand

- Commute Trip Reduction
- Vanpools
- Express Bus/Bus Rapid Transit
- Sound Transit's Sounder





# I-405 Long Range Improvements

## Regional Consensus

- EIS Record of Decision in 2002
- Master Plan adopted out to 2030

## Roadways

- 2 new lanes in each direction
- Local arterial improvements

## Transit & Transportation Choices

- Bus Rapid Transit system
- 9 new transit centers added
- 50% transit service increase
- HOV direct access ramps and flyer stops
- 5,000 new Park & Ride spaces
- 1,700 new vanpools

## Environmental Enhancements

- Early environmental mitigation & wetland mitigation banks



# I-405 Funded Chokepoint Projects

**2003 Nickel**    **2005 TPA**

(x \$1 million)

## SR 520 to I-5

NB 195th St. to SR 527 .....	\$45
Kirkland Nickel Stage 2 .....	\$86
NE 124th St. to SR 522 .....	\$170
NE 132nd St. Bridge .....	\$30

**NE 132nd St. Interchange Ramps.....\$30**

**Kirkland Nickel Stage 1 .....\$78**

**NB NE 8th St. to SR 520-**

**Braided Crossing .....\$250**

<b>NE 10th St. Bridge Crossing.....</b>	<b>\$67</b>
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**112th Ave. SE to SE 8th St.**

Bellevue Nickel Project .....\$185

112th Ave. SE to I-90 .....\$20

**NE 44th St. to 112th Ave. SE.....\$150**

## I-5 to SR 169

Renton Nickel Project .....\$136

I-5 to SR 181 .....\$30

NB SR 167 to SR 169 .....	\$20
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SR 167 SB: I-405 to SE 180th St. ....\$50

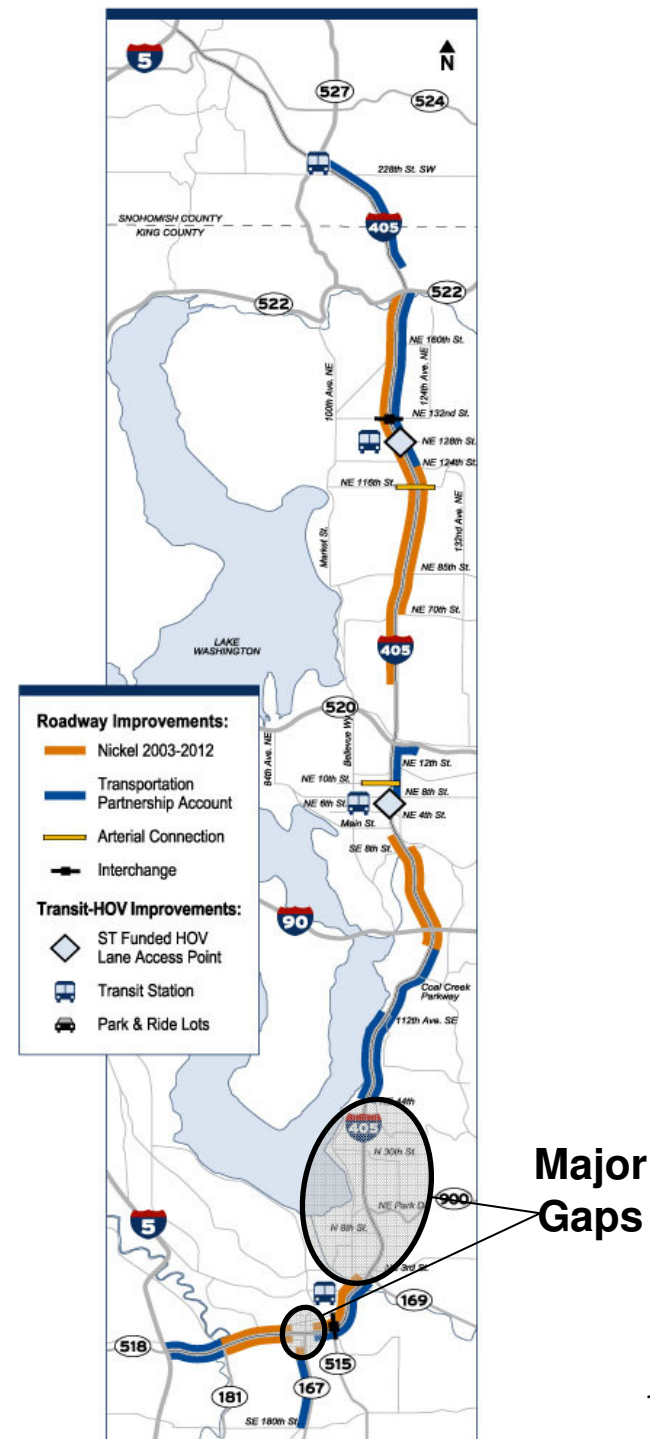
<b>SR 515 Interchange .....</b>	<b>\$110</b>
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**Totals:**

**Nickel 2003-2012 .....\$485**

**TPA 2005.....\$972**

**I-405 Corridor Total State Investment .....\$1,457**

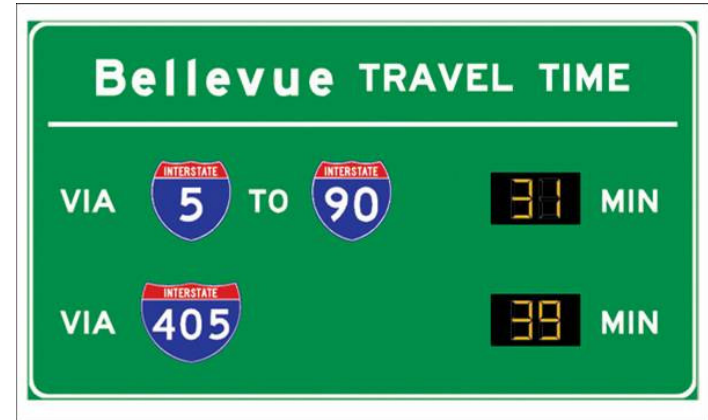




# Sustaining Added Capacity

*Technology keeps traffic moving  
into the future*

- Existing tools, such as ramp meters, traffic loops, and changeable message signs help manage traffic flow and demand.
- Electronic tolling with *Good To Go!* keeps traffic moving and could be used for I-405 variable toll lanes.
- Advanced technologies proven in other parts of the world can improve trip reliability and reduce collisions.



# Westside Corridor



## Strategically Added Capacity

- I-5 HOV Lanes in Everett, Federal Way, Tacoma
- I-5 Shoreline auxiliary lane
- I-5 reconstruction projects
- SR 519 Phase II
- Alaskan Way Viaduct collaboration
- SR 518 third lane from Sea-Tac Airport
- I-5/SR 509 Corridor Completion
- I-5/SR 518/SR 161 interchange improvements



## Operate Efficiently

- Ramp Metering / ITS
- Incident Response Teams
- Active Traffic Management



## Manage Demand

- Commute Trip Reduction
- Vanpools
- Express Bus
- Sound Transit's Link
- Sound Transit's Sounder



# I-5 Pavement Reconstruction Projects

## *Boeing Access to Northgate*

- **Preserve existing pavements**

A series of projects will remove and replace the original deteriorating concrete.



- **Reduce congestion and improve safety by strategically improving chokepoints**

I-5 is a series of long standing bottlenecks caused by lanes that disappear, closely spaced ramps and high volumes.





# 40+ Year Old Pavement Conditions

*The worst of the worst pavement is located between Northgate and NE 175th*



# Possible Operational Improvements

- **Near Term** (2008-2012)

Interchange and arterial signal coordination with the ability to remotely change signal timing to response to traffic conditions. Install Active Traffic Management technologies on I-5.

- **Mid Term** (2012-2014)

Transit-only peak period shoulder northbound Olive Way to SR 520 provides reliable travel speed for transit.

- **Long Term** (2014-2018)

Braid Spokane Street northbound on-ramp with I-5 collector-distributor lane.





# Active Traffic Management

## *New Technologies on the Horizon*

- **Build off current ITS**  
Active traffic management is the next generation of intelligent transportation system
- **Overhead gantries**  
Variable speed limit and lane-control signs over each lane with message signs
- **Speed harmonization**  
Maintain flow and reduce collision risk
- **Hard shoulder running**  
Shoulders open as a travel lane during peak-hour traffic
- **Emergency refuge pull offs**  
Keep traffic moving during stalls and collisions
- **Variable lane control**  
Signals divert traffic away from trouble spots and improve emergency vehicle access
- **Travel time signs**  
Allow for better reroute decisions by travelers



# Cross Lake Corridor



## Strategically Added Capacity

- SR 520 Bridge Replacement
- I-90 R8A HOV Lane



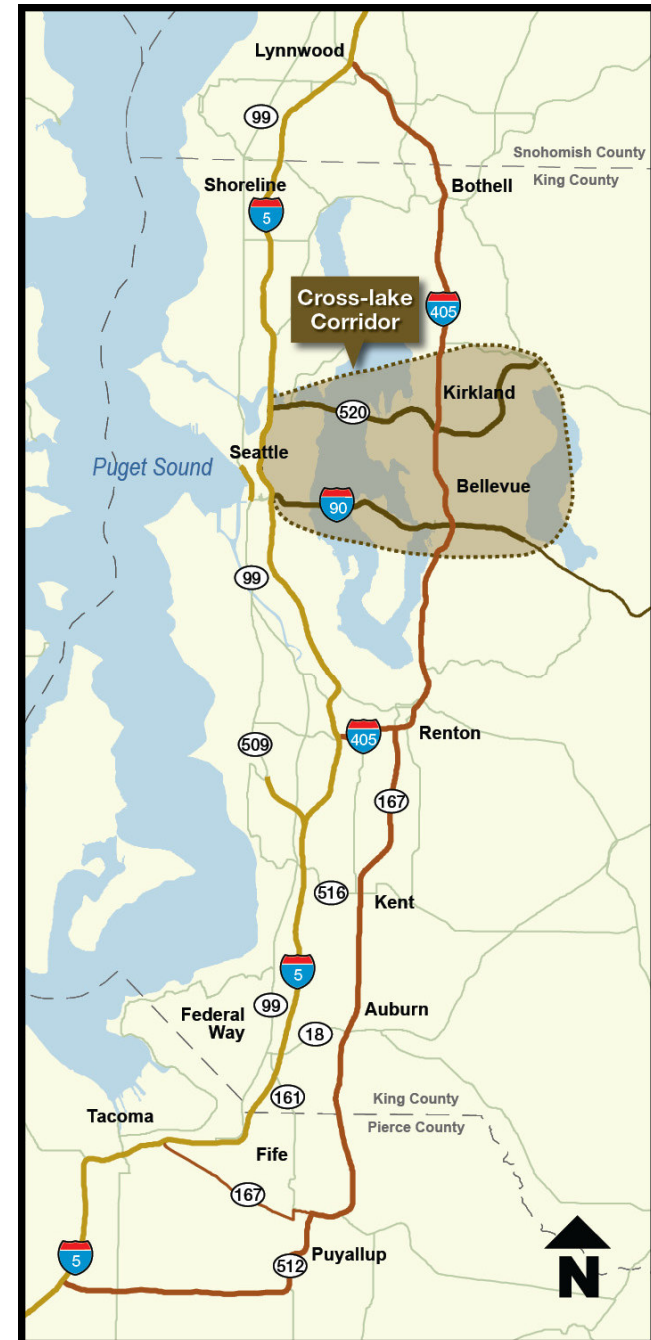
## Operate Efficiently

- Ramp Metering / ITS
- Incident Response Teams
- Active Traffic Management



## Manage Demand

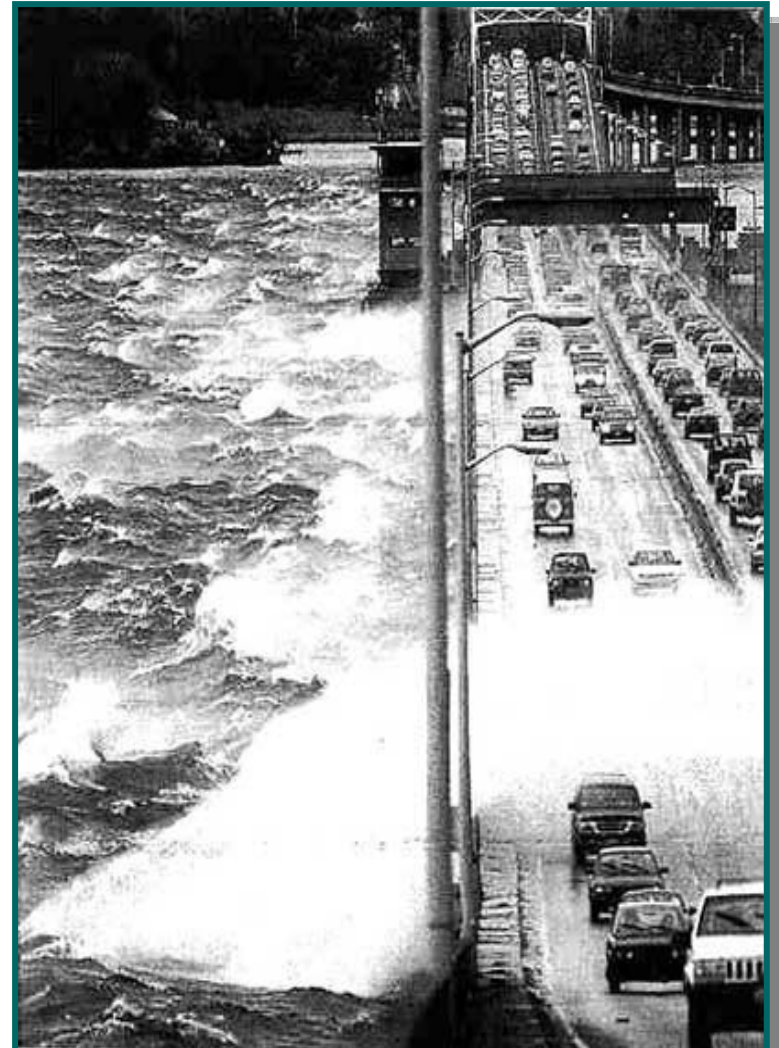
- Commute Trip Reduction
- Vanpools
- Express Bus/Bus Rapid Transit
- Sound Transit Link station at UW
- Accommodate potential high capacity transit cross-lake
- SR 520 Urban Partnership Agreement - tolling, technology, transit, and telecommuting



# The SR 520 Corridor

*The SR 520 Bridges – Evergreen Point and Portage Bay*

- Are vulnerable to collapse during a windstorm or major earthquake
- Carry about 115,000 vehicles (and 150,000 people) per day - almost double what they were designed for
- Suffer heavy congestion which robs the corridor of nearly 40% of its capacity
- Financial and environmental constraints limit the number of lanes that can be added to the existing corridor



# The Lake Washington Urban Partnership



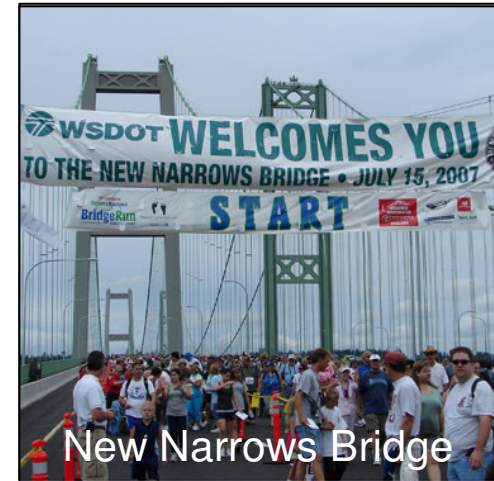
- Part of USDOT initiative to reduce congestion in five geographic regions across the country through implementing the “Four T’s”
  - Seattle/King County area
  - San Francisco
  - Minneapolis
  - Miami
  - New York City
  
- The “Four T’s”
  - Tolling
  - Technology and Traffic Management
  - Transit
  - Telecommuting
  
- WSDOT, PSRC and King County are partnering to implement comprehensive congestion reduction strategies



# Objectives for Tolling

*Tolling offers potential benefits to keep traffic and the economy moving*

- **Revenue generation –**  
**New Tacoma Narrows Bridge**  
To help build projects
- **Congestion management –**  
**SR 167 HOT Lanes Pilot Project**
  - Optimize vehicle throughput
  - Move optional trips out of peak hours
  - Encourage shift to transit or carpools
- **Mixed approach –**  
**SR 520 concept**  
Raise funds and improve throughput
- **Environmental improvements**  
Reduce greenhouse gases





# Spokane Area Corridors

*I-90 Corridor; US 395/US 2 Corridor*



## Strategic Capacity

- Sullivan Road to Idaho State Line
- Argonne Road to Sullivan Road
- Harvard Road/I-90 Off-Ramp
- Francis Ave. to US 2
- I-90 North Access Connection
- Collector Distributor System



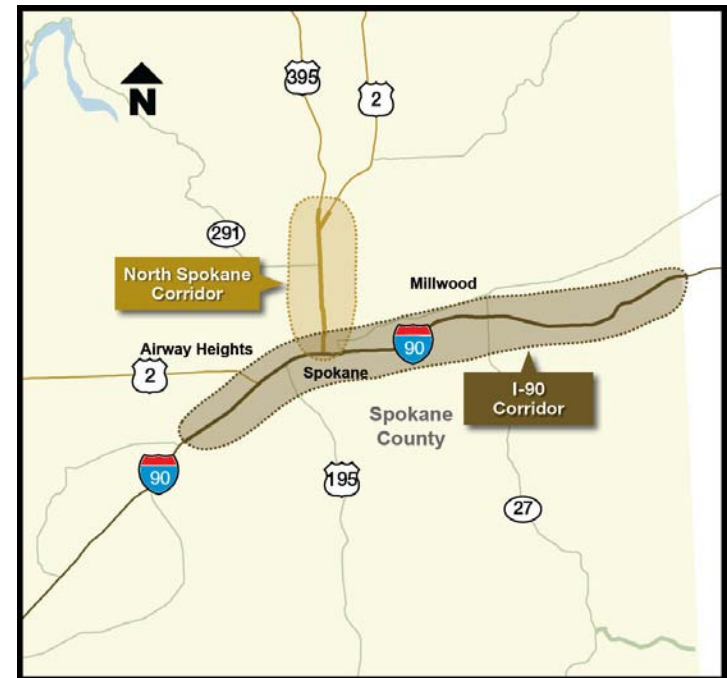
## Operate Efficiently

- US 195 – ITS
- Incident Response Teams



## Manage Demand

- Commute Trip Reduction
- Vanpools
- Harvard Road Pedestrian crossing



# Vancouver Area Corridors

*I-5 Corridor; I-205 Corridor;  
SR 500/SR 14 Corridor*

## Strategically Adding Capacity

- I-5 Bridge Columbia River Crossing
- I-5/N.E. 134<sup>th</sup> interchange
- I-5/N.E. 112<sup>th</sup> Interchange
- SR 500/St. Johns interchange

## Operate Efficiently

- Incident Response Team
- Traveler information signs
- Traffic Cameras
- Signal Timing
- Traffic sensors

## Manage Demand

- Commute Trip Reduction
- Express bus



# **I-5 Bridge, Columbia River Crossing**

## *A bridge, transit and highway improvement project*

### **Congestion Issue**

- Currently experiences 4-6 hours of congestion daily; by 2030, there will be 15 hours of congestion if no action is taken.
- Marine traffic requires bridge lifts; it is the only interstate drawbridge in the county

### **Strategic Capacity**

- Add lanes and widen shoulders
- Includes six interchanges – 4 in Washington, 2 in Oregon
- Transit and bike/ped. options included

### **Operate Efficiently**

- Bridge tolling likely
- Includes adequate shoulders for disabled vehicles or collisions, essential for keeping travel lanes clear

### **Manage Demand**

- Variable tolling being considered
- Traffic cameras, traffic sensors
- Signal timing



*One of five alternatives currently being considered*

### **What's Next?**

- Feb. 2008: Draft EIS on Five Alternatives, including a Draft Locally Preferred Alternative
- 2010: Earliest construction



## ***‘Moving Washington’***

✓ **Congestion is a priority:** Preservation, Safety, Mobility, Reliability and Stewardship are policy goals for Washington State. The success of WSDOT’s congestion relief strategy depends on meeting each of the goals.

✓ **Delivering on our commitment:** WSDOT is delivering crucial transportation projects. With a clear road map for the future, we can meet growing travel demands.

✓ **New tools, new challenges:** WSDOT is studying transportation innovations around the world and working to implement technologies such as active traffic management to ease congestion today and sustain added capacity into the future.





# Questions?

For additional information on  
WSDOT's three-part strategy to relieve congestion,  
please contact:

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